

REMARKS

In an Office Action mailed on June 17, 2002, claims 1 and 2 were rejected under 35 U.S.C. § 112, second paragraph; claims 1-7 and 9-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Woychik; claims 15-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dell; and claims 8 and 11-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Woychik in view of Dell. Claim 1 and 2 have been amended to address the § 112, second paragraph rejections. The § 103 rejections are discussed below in the corresponding sections.

A marked-up version of the amended claims is submitted as a separate document. The undersigned has endeavored to ensure that the clean and marked-up versions of the amended claims correspond. However, the Examiner is specifically requested to verify that these two versions of the claims are consistent.

Rejections of Claims 1-5:

As amended, the circuit board of claim 1 includes a substrate and electrical contacts to mate with a slot connector. The contacts include a first set of at least three uniformly spaced contacts to communicate power and a second set of at least three uniformly spaced contacts to communicate signals and not to communicate power. Adjacent contacts of the first set are separated by a first distance, and adjacent contacts of the second set are separated by a second distance that is different from the first distance.

The Examiner labels the connectors 152 and 160 of Woychik as the first second set of contacts. The Examiner also states that the alleged functional language of the claims "has not been given patentable weight because it is narrative in form." However, contrary to the Examiner's contention, "all words in the claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1885, 165 USPQ 494, 496 (CCPA 1970). Thus, considering all words in claim 1, Woychik neither teaches nor suggests that the connectors 152 communicate power and the connectors 160 do not communicate power. To the contrary, Woychik specifically teaches that some of the connectors 152 and 162 can be used as power leads. Woychik, 8:5-7. Therefore, Woychik not only fails to teach all elements of claim 1, Woychik teaches away from the claimed invention. As such, Woychik cannot be used to support a § 103 rejection of claim 1. M.P.E.P. § 2145(X)(D)(2).

Thus, to summarize, Woychik does not teach (and in fact teaches away from) the limitations of claim 1. Because a *prima facie* case of obviousness has not been established for claim 1, withdrawal of the § 103(a) rejection of claim 1 is requested. Claim 2-5 are patentable for at least the reason that these claims depend from an allowable claim.

Rejections of Claims 6-10:

As amended, the circuit board of claim 6 includes circuitry and a substrate that supports the circuitry. The substrate has a contact edge to be inserted into a slot connector housing assembly. The substrate also has an edge profile that is engaged by the connector housing assembly to hold the circuit board in the connector housing assembly.

Contrary to the limitations of claim 6, Woychik neither teaches nor suggests a substrate that has an edge profile that is engaged by a connector housing assembly to hold a circuit board in the connector housing. Furthermore, element 175 (Fig. 10) of Woychik does not engage an edge profile in a substrate.

For at least this reason, Woychik does not teach all of the limitations of claim 6, and thus, a *prima facie* case of obviousness has not been established for claim 6. Claims 7-10 are patentable for at least the reason that these claims depend from an allowable claim. Therefore, withdrawal of the § 103(a) rejections of claim 6-10 is requested.

Rejections of Claims 11-14:

The method of claim 11 includes supporting circuitry on a substrate to form a circuit board and forming an edge profile in the substrate to engage a slot connector housing assembly to hold the circuit board in the slot connector housing assembly.

In contrast, neither Woychik nor Dell teaches or suggests forming an edge profile in a substrate to engage a slot connector housing assembly to hold a circuit board in the slot connector housing assembly. In this manner, the Examiner refers to spring contacts of Dell to contact pads of a circuit board. Dell, 5:63-67 and 6:1-10. However, this cited language neither teaches nor suggests that the spring contacts engage an edge profile of a substrate that supports circuitry. Furthermore, element 175 (Fig. 10) of Woychik does not engage an edge profile in a substrate. No other language of Dell or Woychik teaches the forming of such an edge profile. Thus, for at least this reason, a *prima facie* case of obviousness has not been established for claim 11.

Claims 12-14 are patentable for at least the reason that these claim depend from an allowable claim. Therefore, withdrawal of the § 103(a) rejections of claims 11-14 is requested.

Rejections of Claims 15-17:

The connector of claim 15 includes a housing that includes a slot to receive a circuit board. The housing is formed from a material having a thermal conductivity of at least approximately 0.27 W/m·K.

In rejecting claim 15, the Examiner states that thermal conductivity would have been in within the general skill of a worker in the art. However, to establish a *prima facie* case of obviousness, the Examiner must show support for a suggestion or motivation to modify the cited reference to derive the missing claim limitations. In this manner, such support for a suggestion or motivation must be explicitly pointed out by the Examiner. *Ex parte Gambogi*, 62 USPQ2d 1209, 1212 (Bd. Pat. App. & Int. 2001); *In re Rijckaert*, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993); M.P.E.P. § 2143. As the Examiner does not specifically point out this alleged suggestion or motivation in any of the cited references, a *prima facie* case of obviousness has not been established, and Applicant has no duty to rebut a case of obviousness for claim 15. *In re Rijckaert*, 28 USPQ2d at 1957.

Claims 16 and 17 are patentable for at least the reason that these claims depend from an allowable claim. Thus, withdrawal of the § 103(a) rejections of claims 15-17 is requested.

Rejections of Claims 18-20:

The method of claim 18 includes using material that has a thermal conductivity of at least approximately 0.27 W/m·K to form a housing for a slot connector.

As discussed above, in connection with the rejection of claim 15, the Examiner does not provide support for a suggestion or motivation to modify Dell to derive the missing claim limitations. Such support for a suggestion or motivation must be explicitly pointed out by the Examiner to establish a *prima facie* case of obviousness for claim 18.

Claims 19 and 20 are patentable for at least the reason that these claims depend from an allowable claim. Thus, withdrawal of the § 103 rejections of claims 18-20 is requested.

Rejections of Claims 21-24:

The method of claim 21 includes providing a slot connector to remove a circuit board and forming fins on the slot connector to conduct heat away from the circuitry of the circuit board.

In the rejections of claims 21-24, the Examiner fails to specifically point out where Dell teaches forming fins on a slot connector. The details of a § 103 rejection must be specifically pointed out by the Examiner to establish a *prima facie* case of obviousness. *Ex parte Gambogi*, 62 USPQ2d at 1212; *In re Rijckaert*, 28 USPQ2d at 1957. Furthermore, Dell neither teaches nor suggests such fins. Thus, for at least these reasons, withdrawal of the § 103(a) rejections of claims 21-24 is requested.

Rejections of Claims 25-27:

As amended, the slot connector of claim 25 includes a housing to receive a circuit board, electrical contacts and a retention mechanism. The electrical contacts establish electrical communication with electrical contacts of the circuit board. The retention mechanism engages an edge profile of the circuit board to secure the circuit board to the slot connector.

The Examiner rejects claim 25 in view of the Dell. However, Dell neither teaches nor suggests a retention mechanism to engage an edge profile of a circuit board to secure the circuit board to the slot connector. Spring contacts that contact corresponding contact pads on a circuit board do not constitute a retention mechanism that engages an edge profile of a circuit board. Thus, a *prima facie* case of obviousness has not been established for rejecting claim 25.

Claims 26 and 27 are patentable for at least the reason that these claims depend from an allowable claim. Therefore, withdrawal of the § 103(a) rejections of claim 25-27 is requested.

Rejections of Claims 28-30:

As amended, the method of claim 28 includes using a housing to form a slot to receive a circuit board and attaching a retention mechanism to the housing to engage an edge profile of the circuit board to secure the circuit board to the housing.

As discussed above, Dell neither teaches nor suggests attaching a retention mechanism to a housing to engage an edge profile of a circuit board. Thus, a *prima facie* case of obviousness has not been established for rejecting claim 28.


Claims 29 and 30 are patentable for at least the reason that these claims depend from an allowable claim. Therefore, withdrawal of the § 103(a) of claims 28-30 is requested.

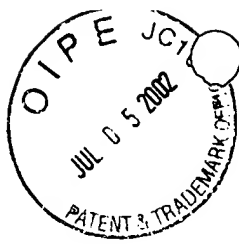
CONCLUSION

In view of the foregoing, withdrawal of the §§ 112 and 103 rejections and a favorable action in the form of a Notice of Allowance are requested. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 20-1504 (ITL.0519US).

Respectfully submitted,

Date: 6/27/02


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CLAIM AMENDMENTS

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The claims have been amended as follows:

1. (Amended) A circuit board comprising:
a substrate; and
electrical contacts to mate with a slot connector, the contacts comprising a first set of at least three uniformly spaced contacts [associated with the communication of] to communicate power and a second set of at least three uniformly spaced contacts [associated with the communication of] to communicate signals and not [used] to communicate power, adjacent contacts of the first set [having] being separated by a first [spacing] distance and adjacent contacts of the second set being separated by [having] a second [spacing] distance different from the first [spacing] distance.
2. (Amended) The circuit board of claim 1, wherein the first distance is [spacing comprises a pitch of] approximately [twice a pitch] half of the second [spacing] distance.
4. (Amended) The circuit board of claim 1, wherein the first [spacing comprises] distance establishes a pitch of approximately 0.05 inches and the second distance [spacing comprises] establishes a pitch of approximately 0.10 inches.
5. (Amended) The circuit board of claim 1, further comprising: **Technology Center 2600**
power regulation circuitry mounted on the substrate and in electrical communication with the first set of contacts to regulate voltages provided by the first set of contacts and not regulate any voltages provided by the second set of contacts..
6. (Amended) A circuit board comprising:
circuitry; and
a substrate supporting the circuitry and having a contact edge to be inserted into a slot connector housing assembly, the substrate having [a] an edge profile engaged by the connector housing assembly to hold the circuit board in the [slot] connector housing assembly.

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7. (Amended) The circuit board of claim 6, wherein the profile is engaged by a mechanism located inside the slot connector housing assembly.

8. (Amended) The circuit board of claim 7, wherein the mechanism comprises at least one of a spring located entirely inside the connector housing assembly and a plastic latch internal to the connector housing assembly.

9. (Amended) The circuit board of claim 6, wherein the profile comprises a notch formed in [another] an edge of the substrate different from the contact edge.


10. (Amended) The circuit board of claim 9, wherein [said another] the edge different from the contact edge extends in an orthogonal direction to the contact edge [inserted in the slot connector housing].

11. (Amended) A method comprising:
supporting circuitry on a substrate to form a circuit board; and
forming [a] an edge profile in the substrate to engage a slot connector housing assembly
to hold the circuit board in the slot connector housing assembly.

12. (Amended) The method of claim 11, further comprising:
engaging the profile with a mechanism located inside the slot connector housing assembly.

13. (Amended) The method of claim 11, wherein the mechanism comprises a spring located entirely inside the connector housing assembly.

25. (Amended) A slot connector comprising:
a housing including a slot to receive a circuit board;
electrical contacts to establish electrical communication with electrical contacts of the circuit board; and



a retention mechanism to engage [a] an edge profile of the circuit board to secure the circuit board to the slot connector.

28. (Amended) A method comprising:
using a housing to form a slot to receive a circuit board;
attaching a retention mechanism to the housing to engage [a] an edge profile of the circuit board to secure the circuit board to the housing.